Y. PAK

RUSH #12

ENTERED
see page 6

1600

RAW SEQUENCE LISTING   DATE: 05/22/2003
PATENT APPLICATION: US/09/913,329A   TIME: 11:10:11

Input Set : A:\EP.txt
Output Set: N:\CRF4\05222003\I913329A.raw

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 3 <110> APPLICANT: UNIVERSITE DE MONTREAL
 5 <120> TITLE OF INVENTION: NEW METALLOPROTEASES OF THE NEPRILYSIN FAMILY
 7 <130> FILE REFERENCE: BIOMEP INC. NEPRILYSIN
C--> 9 <140> CURRENT APPLICATION NUMBER: US/09/913,329A
C--> 10 <141> CURRENT FILING DATE: 2001-08-21
12 <150> PRIOR APPLICATION NUMBER: 2,260,376
13 <151> PRIOR FILING DATE: 1999-02-11
15 <160> NUMBER OF SEQ ID NOS: 17
17 <170> SOFTWARE: PatentIn Ver. 2.1
19 <210> SEQ ID NO: 1
20 <211> LENGTH: 750
21 <212> TYPE: PRT
22 <213> ORGANISM: Homo sapiens
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29              20                  25                  30
31 Val Leu Val Leu Leu Leu Thr Ile Ile Ala Val Thr Met Ile Ala Leu
32          35                  40                  45
34 Tyr Ala Thr Tyr Asp Asp Gly Ile Cys Lys Ser Ser Asp Cys Ile Lys
35      50                  55                  60
37 Ser Ala Ala Arg Leu Ile Gln Asn Met Asp Ala Thr Thr Glu Pro Cys
38  65                  70                  75                  80
40 Thr Asp Phe Phe Lys Tyr Ala Cys Gly Gly Trp Leu Lys Arg Asn Val
41                  85                  90                  95
43 Ile Pro Glu Thr Ser Ser Arg Tyr Gly Asn Phe Asp Ile Leu Arg Asp
44              100                 105                 110
46 Glu Leu Glu Val Val Leu Lys Asp Val Leu Gln Glu Pro Lys Thr Glu
47          115                 120                 125
49 Asp Ile Val Ala Val Gln Lys Ala Lys Ala Leu Tyr Arg Ser Cys Ile
50      130                 135                 140
52 Asn Glu Ser Ala Ile Asp Ser Arg Gly Gly Glu Pro Leu Leu Lys Leu
53 145                 150                 155                 160
55 Leu Pro Asp Ile Tyr Gly Trp Pro Val Ala Thr Glu Asn Trp Glu Gln
56                  165                 170                 175
58 Lys Tyr Gly Ala Ser Trp Thr Ala Glu Lys Ala Ile Ala Gln Leu Asn
59                  180                 185                 190
61 Ser Lys Tyr Gly Lys Lys Val Leu Ile Asn Leu Phe Val Gly Thr Asp
62              195                 200                 205
64 Asp Lys Asn Ser Val Asn His Val Ile His Ile Asp Gln Pro Arg Leu
65      210                 215                 220
67 Gly Leu Pro Ser Arg Asp Tyr Tyr Glu Cys Thr Gly Ile Tyr Lys Glu
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 68 225                   230                 235                    240
 70 Ala Cys Thr Ala Tyr Val Asp Phe Met Ile Ser Val Ala Arg Leu Ile
 71                 245                 250                    255
 73 Arg Gln Glu Glu Arg Leu Pro Ile Asp Glu Asn Gln Leu Ala Leu Glu
 74                 260                 265                 270
 76 Met Asn Lys Val Met Glu Leu Glu Lys Glu Ile Ala Asn Ala Thr Ala
 77          275                 280                 285
 79 Lys Pro Glu Asp Arg Asn Asp Pro Met Leu Leu Tyr Asn Lys Met Thr
 80       290                 295                 300
 82 Leu Ala Gln Ile Gln Asn Asn Phe Ser Leu Glu Ile Asn Gly Lys Pro
 83 305                 310                 315                    320
 85 Phe Ser Trp Leu Asn Phe Thr Asn Glu Ile Met Ser Thr Val Asn Ile
 86                 325                 330                 335
 88 Ser Ile Thr Asn Glu Glu Asp Val Val Val Tyr Ala Pro Glu Tyr Leu
 89                 340                 345                 350
 91 Thr Lys Leu Lys Pro Ile Leu Thr Lys Tyr Ser Ala Arg Asp Leu Gln
 92          355                 360                 365
 94 Asn Leu Met Ser Trp Arg Phe Ile Met Asp Leu Val Ser Ser Leu Ser
 95       370                 375                 380
 97 Arg Thr Tyr Lys Glu Ser Arg Asn Ala Phe Arg Lys Ala Leu Tyr Gly
 98 385                 390                 395                    400
100 Thr Thr Ser Glu Thr Ala Thr Trp Arg Arg Cys Ala Asn Tyr Val Asn
101                 405                 410                 415
103 Gly Asn Met Glu Asn Ala Val Gly Arg Leu Tyr Val Glu Ala Ala Phe
104                 420                 425                 430
106 Ala Gly Glu Ser Lys His Val Val Glu Asp Leu Ile Ala Gln Ile Arg
107          435                 440                 445
109 Glu Val Phe Ile Gln Thr Leu Asp Asp Leu Thr Trp Met Asp Ala Glu
110       450                 455                 460
112 Thr Lys Lys Arg Ala Glu Glu Lys Ala Leu Ala Ile Lys Glu Arg Ile
113 465                 470                 475                    480
115 Gly Tyr Pro Asp Asp Ile Val Ser Asn Asp Asn Lys Leu Asn Asn Glu
116                 485                 490                 495
118 Tyr Leu Glu Leu Asn Tyr Lys Glu Asp Glu Tyr Phe Glu Asn Ile Ile
119                 500                 505                 510
121 Gln Asn Leu Lys Phe Ser Gln Ser Lys Gln Leu Lys Lys Leu Arg Glu
122          515                 520                 525
124 Lys Val Asp Lys Asp Glu Trp Ile Ser Gly Ala Ala Val Val Asn Ala
125       530                 535                 540
127 Phe Tyr Ser Ser Gly Arg Asn Gln Ile Val Phe Pro Ala Gly Ile Leu
128 545                 550                 555                    560
130 Gln Pro Pro Phe Phe Ser Ala Gln Gln Ser Asn Ser Leu Asn Tyr Gly
131                 565                 570                 575
133 Gly Ile Gly Met Val Ile Gly His Glu Ile Thr His Gly Phe Asp Asp
134          580                 585                 590
136 Asn Gly Arg Asn Phe Asn Lys Asp Gly Asp Leu Val Asp Trp Trp Thr
137          595                 600                 605
139 Gln Gln Ser Ala Ser Asn Phe Lys Glu Gln Ser Gln Cys Met Val Tyr
140       610                 615                 620
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143 625                 630                 635                 640
145 Gly Ile Asn Thr Leu Gly Glu Asn Ile Ala Asp Asn Gly Gly Leu Gly
146                 645                 650                 655
148 Gln Ala Tyr Arg Ala Tyr Gln Asn Tyr Ile Lys Lys Asn Gly Glu Glu
149                 660                 665                 670
151 Lys Leu Leu Pro Gly Leu Asp Leu Asn His Lys Gln Leu Phe Phe Leu
152                 675                 680                 685
154 Asn Phe Ala Gln Val Trp Cys Gly Thr Tyr Arg Pro Glu Tyr Ala Val
155         690                 695                 700
157 Asn Ser Ile Lys Thr Asp Val His Ser Pro Gly Asn Phe Arg Ile Ile
158 705                 710                 715                 720
160 Gly Thr Leu Gln Asn Ser Ala Glu Phe Ser Glu Ala Phe His Cys Arg
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169 <212> TYPE: PRT
170 <213> ORGANISM: Homo sapiens
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177                 20                 25                 30
179 Leu Gly Thr Ile Leu Phe Leu Val Ser Gln Gly Leu Leu Ser Leu Gln
180                 35                 40                 45
182 Ala Lys Gln Glu Tyr Cys Leu Lys Pro Glu Cys Ile Glu Ala Ala Ala
183         50                 55                 60
185 Ala Ile Leu Ser Lys Val Asn Leu Ser Val Asp Pro Cys Asp Asn Phe
186  65                 70                 75                 80
188 Phe Arg Phe Ala Cys Asp Gly Trp Ile Ser Asn Asn Pro Ile Pro Glu
189                 85                 90                 95
191 Asp Met Pro Ser Tyr Gly Val Tyr Pro Trp Leu Arg His Asn Val Asp
192                 100                 105                 110
194 Leu Lys Leu Lys Glu Leu Leu Glu Lys Ser Ile Ser Arg Arg Arg Asp
195         115                 120                 125
197 Thr Glu Ala Ile Gln Lys Ala Lys Ile Leu Tyr Ser Ser Cys Met Asn
198         130                 135                 140
200 Glu Lys Ala Ile Glu Lys Ala Asp Ala Lys Pro Leu Leu His Ile Leu
201 145                 150                 155                 160
203 Arg His Ser Pro Phe Arg Trp Pro Val Leu Glu Ser Asn Ile Gly Pro
204                 165                 170                 175
206 Glu Gly Val Trp Ser Glu Arg Lys Phe Ser Leu Leu Gln Thr Leu Ala
207                 180                 185                 190
209 Thr Phe Arg Gly Gln Tyr Ser Asn Ser Val Phe Ile Arg Leu Tyr Val
210                 195                 200                 205
212 Ser Pro Asp Asp Lys Ala Ser Asn Glu His Ile Leu Lys Leu Asp Gln
213         210                 215                 220
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215 Ala Thr Leu Ser Leu Ala Val Arg Glu Asp Tyr Leu Asp Asn Ser Thr
216 225                 230                 235                 240
218 Glu Ala Lys Ser Tyr Arg Asp Ala Leu Tyr Lys Phe Met Val Asp Thr
219                 245                 250                 255
221 Ala Val Leu Leu Gly Ala Asn Ser Ser Arg Ala Glu His Asp Met Lys
222             260                 265                 270
224 Ser Val Leu Arg Leu Glu Ile Lys Ile Ala Glu Ile Met Ile Pro His
225         275                 280                 285
227 Glu Asn Arg Thr Ser Glu Ala Met Tyr Asn Lys Met Asn Ile Ser Glu
228     290                 295                 300
230 Leu Ser Ala Met Ile Pro Gln Phe Asp Trp Leu Gly Tyr Ile Lys Lys
231 305                 310                 315                 320
233 Val Ile Asp Thr Arg Leu Tyr Pro His Leu Lys Asp Ile Ser Pro Ser
234                 325                 330                 335
236 Glu Asn Val Val Val Arg Val Pro Gln Tyr Phe Lys Asp Leu Phe Arg
237             340                 345                 350
239 Ile Leu Gly Ser Glu Arg Lys Lys Thr Ile Ala Asn Tyr Leu Val Trp
240         355                 360                 365
242 Arg Met Val Tyr Ser Arg Ile Pro Asn Leu Ser Arg Arg Phe Gln Tyr
243     370                 375                 380
245 Arg Trp Leu Glu Phe Ser Arg Val Ile Gln Gly Thr Thr Thr Leu Leu
246 385                 390                 395                 400
248 Pro Gln Trp Asp Lys Cys Val Asn Phe Ile Glu Ser Ala Leu Pro Tyr
249       ·         405                 410                 415
251 Val Val Gly Lys Met Phe Val Asp Val Tyr Phe Gln Glu Asp Lys Lys
252             420                 425                 430
254 Glu Met Met Glu Glu Leu Val Glu Gly Val Arg Trp Ala Phe Ile Asp
255         435                 440                 445
257 Met Leu Glu Lys Glu Asn Glu Trp Met Asp Ala Gly Thr Lys Arg Lys
258     450                 455                 460
260 Ala Lys Glu Lys Ala Arg Ala Val Leu Ala Lys Val Gly Tyr Pro Glu
261 465                 470                 475                 480
263 Phe Ile Met Asn Asp Thr His Val Asn Glu Asp Leu Lys Ala Ile Lys
264             485                 490                 495
266 Phe Ser Glu Ala Asp Tyr Phe Gly Asn Val Leu Gln Thr Arg Lys Tyr
267         500                 505                 510
269 Leu Ala Gln Ser Asp Phe Phe Trp Leu Arg Lys Ala Val Pro Lys Thr
270         515                 520                 525
272 Glu Trp Phe Thr Asn Pro Thr Thr Val Asn Ala Phe Tyr Ser Ala Ser
273     530                 535                 540
275 Thr Asn Gln Ile Arg Phe Pro Ala Gly Glu Leu Gln Lys Pro Phe Phe
276 545                 550                 555                 560
278 Trp Gly Thr Glu Tyr Pro Arg Ser Leu Ser Tyr Gly Ala Ile Gly Val
279                 565                 570                 575
281 Ile Val Gly His Glu Phe Thr His Gly Phe Asp Asn Asn Gly Arg Lys
282             580                 585                 590
284 Tyr Asp Lys Asn Gly Asn Leu Asp Pro Trp Trp Ser Thr Glu Ser Glu
285         595                 600                 605
287 Glu Lys Phe Lys Glu Lys Thr Lys Cys Met Ile Asn Gln Tyr Ser Asn
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288      610                    615                    620
290 Tyr Tyr Trp Lys Lys Ala Gly Leu Asn Val Lys Gly Lys Arg Thr Leu
291 625                    630                    635                    640
293 Gly Glu Asn Ile Ala Asp Asn Gly Gly Leu Arg Glu Ala Phe Arg Ala
294                    645                    650                    655
296 Tyr Arg Lys Trp Ile Asn Asp Arg Arg Gln Gly Leu Glu Glu Pro Leu
297                    660                    665                    670
299 Leu Pro Gly Ile Thr Phe Thr Asn Asn Gln Leu Phe Phe Leu Ser Tyr
300                    675                    680                    685
302 Ala His Val Arg Cys Asn Ser Tyr Arg Pro Glu Ala Ala Arg Glu Gln
303                    690                    695                    700
305 Val Gln Ile Gly Ala His Ser Pro Pro Gln Phe Arg Val Asn Gly Ala
306 705                    710                    715                    720
308 Ile Ser Asn Phe Glu Glu Phe Gln Lys Ala Phe Asn Cys Pro Pro Asn
309                    725                    730                    735
311 Ser Thr Met Asn Arg Gly Met Asp Ser Cys Arg Leu Trp
312                    740                    745
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316 <211> LENGTH: 732
317 <212> TYPE: PRT
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324 Ala Gly Gly Met Gly Thr Leu Trp Ser Gln Glu Ser Thr Pro Glu Glu
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327 Arg Leu Pro Val Glu Gly Ser Arg Pro Trp Ala Val Ala Arg Arg Val
328                    35                    40                    45
330 Leu Thr Ala Ile Leu Ile Leu Gly Leu Leu Leu Cys Phe Ser Val Leu
331                    50                    55                    60
333 Leu Phe Tyr Asn Phe Gln Asn Cys Gly Pro Arg Pro Cys Glu Thr Ser
334  65                    70                    75                    80
336 Val Cys Leu Asp Leu Arg Asp His Tyr Leu Ala Ser Gly Asn Thr Ser
337                    85                    90                    95
339 Val Ala Pro Cys Thr Asp Phe Phe Ser Phe Ala Cys Gly Arg Ala Lys
340                    100                    105                    110
342 Glu Thr Asn Asn Ser Phe Gln Glu Leu Ala Thr Lys Asn Lys Asn Arg
343                    115                    120                    125
345 Leu Arg Arg Ile Leu Glu Val Gln Asn Ser Trp His Pro Gly Ser Gly
346                    130                    135                    140
348 Glu Glu Lys Ala Phe Gln Phe Tyr Asn Ser Cys Met Asp Thr Leu Ala
349 145                    150                    155                    160
351 Ile Glu Ala Ala Gly Thr Gly Pro Leu Arg Gln Val Ile Glu Glu Leu
352                    165                    170                    175
354 Gly Gly Trp Arg Ile Ser Gly Lys Trp Thr Ser Leu Asn Phe Asn Arg
355                    180                    185                    190
357 Thr Leu Arg Leu Leu Met Ser Gln Tyr Gly His Phe Pro Phe Phe Arg
358                    195                    200                    205
360 Ala Tyr Leu Gly Pro His Pro Ala Ser Pro His Thr Pro Val Ile Gln
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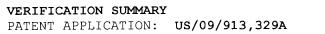
RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 05/22/2003
PATENT APPLICATION: US/09/913,329A   TIME: 11:10:12

Input Set : **A:\EP.txt**
Output Set: **N:\CRF4\05222003\I913329A.raw**

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:5; N Pos. 14,18,21
Seq#:6; N Pos. 14,18,21
Seq#:7; N Pos. 4,7,14,17,20,25
Seq#:8; N Pos. 4,7,14,17,20,25
Seq#:9; N Pos. 2,3,6,9,18,21
Seq#:10; N Pos. 12,24
Seq#:11; N Pos. 9,12,31

VERIFICATION SUMMARY   DATE: 05/22/2003
PATENT APPLICATION: **US/09/913,329A**   TIME: 11:10:12

Input Set : **A:\EP.txt**
Output Set: **N:\CRF4\05222003\I913329A.raw**

L:9 M:270 C: Current Application Number differs, Replaced Current Application Number
L:10 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:636 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0
L:664 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:0
L:707 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:0
L:750 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:0
L:793 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:0
L:816 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:0
L:844 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:0